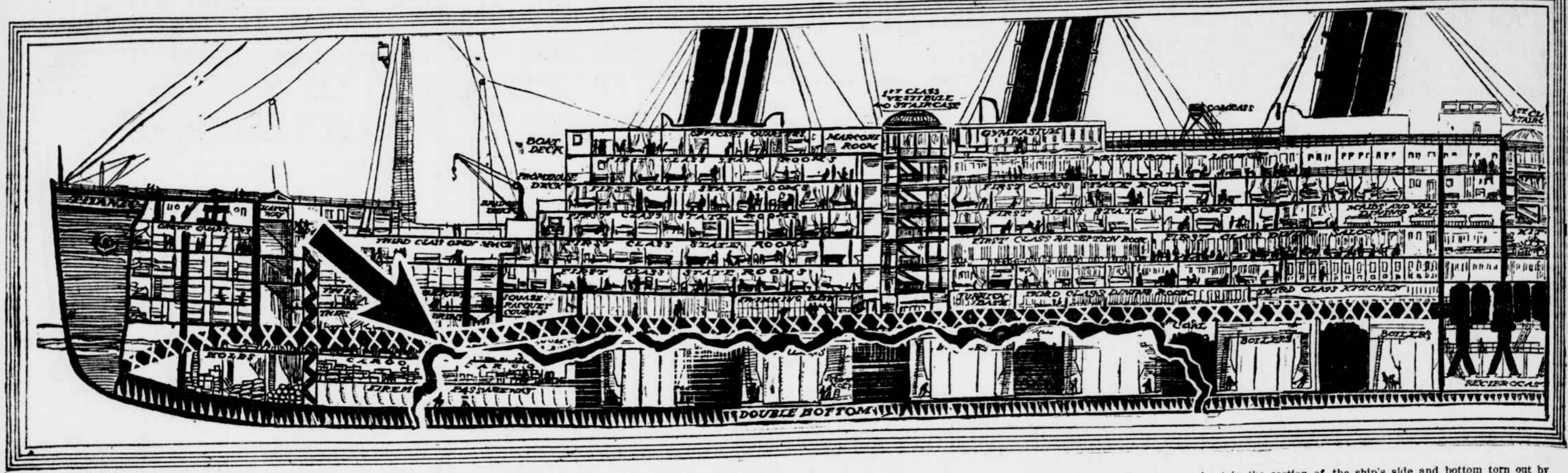


## LONGITUDINAL SECTION OF THE WHITE STAR LINER TITANIC, SHOWING HER BULKHEADS AND COMPARTMENTS.



According to evidence of ship's officers and stories of survivors, the Titanic struck the edge or shelf of a low lying iceberg, about where the arrow indicates on the diagram. The heavy black line indicates approximately the section of the ship's side and bottom torn out by the berg, causing her to fill and later to break apart. The dotted line indicates the outline of a protective deck or inner hull, such as is incorporated in warships. Experts say that the Titanic did not have sunk had she been built with such an inner hull.

## BELIEVE TITANIC'S BULKHEADS TOO LOW

Naval Constructors Say Those Forward Were One Deck Beneath Those Aft.

## URGE USE OF INNER HULLS

Officers Point Out That This Feature of Warships Would Make Ocean Liners Much Safer.

Washington, April 19.—Naval officers have taken the keenest interest in the stories of the survivors of the wreck of the Titanic, particularly with the view of learning the effect of the collision on the ship. As yet there has been nothing revealed which fully satisfies the naval constructors as to the real cause of the sinking of the ship. Officers on duty here have examined the plans of the Titanic and have formed the opinion that the ship might have been saved had it not been for what they regard as a deficiency in bulkhead construction.

These officers have observed that in the forward part of the ship the bulkheads extended only to a deck which was one deck lower than the height of the after bulkheads. There was omitted from the ship a reinforced bulkhead, which, they say, should have extended above the others and which would have served to prevent the inrush of water when the vessel settled by the bow, bringing the water line above the forward bulkheads. In this way, it is believed, it was possible for the water to sweep aft and enter the remaining compartments.

Accounts of the sinking of the ship differ in detail, but, taking all the conditions into consideration, it is surmised by the naval constructors that the immediate cause of the sinking of the ship was this arrangement of bulkheads.

It is pointed out, also, that there was no lower bulkhead, such as is installed on warships, and which in the case of the Titanic, the officers say, might have kept her afloat until the arrival of the Carpathia at least, if not long enough to limp into some harbor or to some beach. The Titanic did have the double bottom which is a feature of war-ship construction.

The naval constructors believe, therefore, that it would be advantageous to add to the weight carried by transatlantic liners by additional bulkhead construction and an inner hull, to say nothing of adequate lifesaving apparatus, and to do away with some of the luxuries which are used largely for advertising purposes and to satisfy the demands of the wealthier travelers.

Thinks Speed Minor Factor.

One of the naval officers who has taken much interest in the discussion arising from the loss of the Titanic is Rear Admiral Philip Andrews, formerly naval aide to the Secretary of the Navy and now chief of the bureau of navigation, who said to-day:

"There is, naturally enough, a good deal of discussion concerning alleged excessive speed in the transatlantic liner, but it seems to me that that is not the factor in oceanic navigation which may properly be regarded as a peril calling for protective measures. It is only natural that there should be every effort made to reduce the time required in transatlantic travel. That is something which the public demands, and it is by no means certain that the chance of disaster would be materially lessened by a reduction of speed from, say, twenty-one to eighteen knots, which would be a great sacrifice in a commercial way.

"What is of real necessity, however, is the establishment of safe lanes of travel, with an avoidance of the obstructions which navigators come to dread and against which they are repeatedly warned by our naval hydrographic office. If the establishment of these ocean lanes of safety is augmented by an increase in the facilities of the hydrographic office and the employment of a patrol vessel to investigate the conditions and other measures to navigation, and to give warning and information to navigators, it seems to me that the situation will be met in a more adequate way, so far as there is protection to life and property on the sea, than by requiring ocean steamers to reduce their speed, except, of course, at a time when it is obviously necessary to proceed with caution, as in a fog. It does not require a naval expert to know that there are times when no vessel could jeopardize the lives of passengers by disregarding the rules of cautious navigation.

"One of the important demonstrations by the loss of the Titanic is the need of the successful international regulation of wireless communication, concerning which futile efforts have been made by the naval authorities for several years. The legislation which has been recommended has for some reason encountered obstruction. At all events, nothing has been done in the direction in which action is urgently needed.

Suggests "Abandon Ship" Drill.

"It would be well, also, to establish rules on board ship so that passengers and crew might regularly be stationed at the boats and drilled at 'abandon ship.' There would then be familiarity with the means of meeting an emergency and lessening the chance of panic and disorder. Another beneficial

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Festivities Abandoned—Resolutions Express Sympathy.

The prevailing sorrow over the fate of the Titanic, which, with the first receipt of the news five days ago, began to thin out the theatre crowds and quiet the diners and winners along Broadway, assumed a more formal aspect last evening. Hundreds of private fêtes and entertainments were abruptly abandoned and many public dinners and meetings were indefinitely postponed.

Mayor Gaynor, as president of the society known as the Sons of Onondaga, which was to have held its dinner at the Waldorf-Astoria next Wednesday evening, suggested that it be postponed for the present, and his action was instantly approved by the dinner committee.

Paul Faguel, general agent of the Compagnie Generale Transatlantique, has recalled all of the invitations for a dinner on board the new French Line steamship France on Tuesday evening, April 30. The same action was taken in the case of the 1st Squadron, 1st Cavalry, of the national guard, which was to hold its review and parade to-day.

In addition, the church services next Sunday, which will be attended by the guard, will not be accompanied by the usual marching to and from the church.

The rectors, wardens and vestrymen of the Church of the Incarnation announced last night the postponement of the sixtieth anniversary dinner. No future date was set for the event.

Resolutions, the great majority commending the courage of the men who died on the great steamship and expressing sympathy for the bereaved and thanks for the saved, were passed by a score of organizations at special meetings held yesterday and last evening. The Men's Association of the University Place Presbyterian Church, the board of managers of the New York Produce Exchange and the New York York Produce Exchange were among those who gave up their lives that the weak and helpless might live.

## APPLY TO MAYOR FOR HELP

All Referred to Headquarters in Metropolitan Life Building.

Several applications for the relief of Titanic sufferers were made at Mayor Gaynor's office in the City Hall yesterday. He referred them to the committee in charge of the relief work, of which Robert W. de Forest is chairman, and which has established offices in the arcade of the Metropolitan Life Building, at No. 1 Madison avenue.

One of the saddest cases brought to the attention of the Mayor was that of an English woman and her seven-year-old daughter. The husband and father went down with the Titanic, carrying in a belt around his waist \$5,000, which was every cent the family had. Recently they sold all their possessions in Surrey, England, and were on their way to start a new home in Idaho. Even their tickets for transportation to that state were lost. The father had obtained a place in a lifeboat shortly after his wife and child had got places, but his boat was swamped and he was drowned.

The mother and daughter, whose names were not given by the Mayor, are being cared for temporarily at an uptown hotel by a fraternal organization to which the husband belonged.

W. Frank Persons is in charge of the relief headquarters in the Metropolitan Building. It was announced that the telephone number was Gramercy 123, through which persons desiring relief or wishing to aid in the work could communicate with the committee.

Mr. de Forest said they had sent out a number of investigators to visit the survivors, get their stories and ascertain their need of assistance. It is said that the committee hopes to provide permanent relief for the women and children who lost their husbands and fathers.

## MESSAGE FROM ROOSEVELT

Mayor Gets Telegram Expressing Grief at Titanic Disaster.

Theodore Roosevelt sent the following message to the Mayor on Thursday, it being received at the City Hall yesterday morning:

Lincoln, Neb., April 18.  
Hon. William J. Gaynor,  
I wish I were present in New York this afternoon to join with my fellow citizens in expressing our grief at the shocking catastrophe to the Titanic and our deep sympathy with the kindred of those who have perished.

THEO. ROOSEVELT.

## BOTH HARRIS THEATRES CLOSE.

The Hudson Theatre and the Harris Theatre, in West 42nd street, the properties of Henry B. Harris, the theatrical producer, who was lost when the Titanic foundered, will be closed to-night out of respect to the dead manager.

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The resolution of the last named closed with these words:

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Mates Who Were Lost

## Survivors Gather To Be Clothed and Tell Tearful Tales of Sacrifice and Heroism.

## STEAMER ON FIRE BELOW

Stokers Agree Blaze Was in Progress from Time of Leaving Southampton Till 2 P. M. Saturday.

Stories of heroism and self-sacrifice on the part of the members of the crew who went down with the Titanic were told yesterday by those of the crew who survived. The ones who witnessed the tragic death of Captain Smith wept as they told their tales. In their eyes the captain of the Titanic was sanctified by his fate.

The story of how Chief Engineer Bell and his assistants went to their death down in the recesses of the ship, working alone at the pumps, after they had ordered the chief stoker aloft, telling him to feed for his life, was one that was on the lips of every sailor.

But, like true sailors, their final word of praise went to the women. They told of cultured women who took the oars when the men who manned them were killed. Of the men who manned the oars when the ship sank, and the "Egote absolver" of the priest was answered by a brief prayer by contrite men and women.

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"The fire was in the coal bunkers, forward," said this man, "in stokeholds 5 and 10, on the forward end. In what is known as the second and third sections.

"The fire must have been raging long before she pulled out of her pier in Southampton, for the bunker was a raging hell when, one hour out past the Needles, the fire was discovered.

"Immediately we began to work on the fire, and it took us until Saturday afternoon to extinguish it. We were compelled to dig out all the coal from these sections.

"In my opinion this fire played no small part in the disaster, for when the bow was stove in the waters ready to open the watertight bulkheads, behind which had been this coal. If the coal had been still in the second and third sections when the vessel struck the iceberg it would have probably helped the bulkhead to resist the strain."

The same man, speaking of the accident, said:

"None of us realized there was any danger at first. I ran to the deck, and soon returned thinking nothing serious had happened. Then I wondered what would be the result if the order was given to lower the lifeboats, for no man knew his place on the ship in such an event."

No Muster of the Crew.

Asked to explain, he said:

"Well, we had no muster. Ordinarily the crew is mustered every Sunday morning, and they are put through the same spaces they would have to go through in the event of deserting the ship. When Sunday morning passed and no muster was ordered, we all thought we would surely have a muster Sunday night. We did."

He added grimly, "but it was not a drill. Yet it seemed that every man who went on deck jumped into his proper place. That the lifeboats were put off without any being overturned in their davits was a miracle. The lifeboat I had charge of became fast as the men who should have lowered the forward fall rope evidently did not know his business. However, I pulled out a knife and cut the rope just in time."

Asked if he knew any reason why the men had not been mustered, he answered:

"I suppose—well, I really cannot answer that question."

This officer said that the vessel had three additional boilers going Saturday and that the ship was striving her utmost to make a record.

"When we left Southampton," he said, "we had twenty-one of the twenty-two boilers going. Friday, at midnight, three more were added, so that on Saturday we made 54 miles. The day before we made something like 55 miles."

Sixty Lost in the Hold.

Edward King, a stoker, said that when the ship struck the berg he was firing.

"There were over seventy of us down in the hold," he continued, "and only ten of us escaped. Just before the crash came the signal was given to stop. The chief stoker ordered the dampers closed. This we did. We were standing around for fully a minute, wondering what was wrong, when the crash came. Almost a minute later there came a message from the engine room over the telephone. Engineer Harvey, after hanging up the receiver, shouted:

"All the men on deck!" The men responded by scrambling up the steel escape ladders and taking their places by the boats."

Thomas Jones, an able-bodied seaman, hailing from Anglesea, told, perhaps, the most dramatic story of the lot.

"I was put in command of No. 8 boat. In it were many women—most of them were women and children. Two of them were little ladies. One was the Countess of Rothes, and she was a 'brick.' She asked me if she could be of service when some of the men manning the oars began to get weak. 'Certainly, your ladyship,' says I. I took one of the men's places at the oars and she took mine at the tiller, and—would you believe it?—that lady, the Countess of Rothes, stood at the tiller all night! Yes, sir. An' she's a long sight better'n most men. Every order I giv her she obeyed just like a sailor would."

"And there was another titled lady, a barones, I think, with little hands, but they were strong. She worked beside me at the same oar when one of the men got tired, and she kept a strong, steady stroke, with never a word of complaint, all night."

Only One Distress Signal.

Seaman Jones said that there were but thirty-five in his lifeboat, and that it could have held thirty more without overcrowding.

"When we put off from the boat," he said, "Captain Smith ordered me to proceed to the fishing smacks, whose lights we could see in the distance, and then to come back to the boats. But the fishing smacks paid no attention to us, probably because we used no rocket, and, then again, there was but one boat among the whole fleet of lifeboats that carried a blue light—the signal of distress."

"When I saw the ship was doomed I stood by. My God, but it was something awful! The people on the boat were crying, most of them, and many of our men who had seen the boats pull off with less than their full capacity cried out to us to pull back."

"One voice I could distinguish. It was that of my mate, 'Paddy' Lyons, of Cork, who lowered our boat. He was shouting 'Boat ahoy!' I wanted to turn back, but most of the women began to cry and urged me to go on."

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